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In 3 DM



DRIED MILK

100

pounds of skim milk make about 9 pounds of dried milk

Dried milk offers one excellent solution to a great problem of defense, that of transporting as much nutritious food as possible in the smallest possible package.

Dried skim milk weighs one-eleventh as much as an equivalent amount of liquid milk. Its food value is practically the same and its taste compares favorably. Packed in a tightly sealed can, it will last for approximately 1 year under good conditions.

As early as the thirteenth century the Mongols were making dried milk, writings of the famous medieval traveler Marco Polo reveal. It was not until seven centuries later, however, in the late nineteenth and early twentieth centuries, that dried milk was made with such good nutritive, taste, and keeping qualities that it could be considered an adequate substitute for fresh milk.

The wars of the last 100 years have given great impetus to the production of milk concen-

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Both food and drink -

trates. Evaporated milk came into its own during the United States civil war with its tremendous food shortages. By the time of the first World War, dried milk had been developed sufficiently to prove invaluable in feeding armies and civilian populations. Production of dried

milk in the United States increased from approximately 21 million pounds in 1914 to more than 52 million pounds in 1920.

Estimates of dried milk needs for 1942 indicate that United States production of dry skim milk for human consumption should be twice as large next year as in 1941. Production in the United States this year will total 380 million pounds, it is estimated.

More than 30 million pounds of dried milk were purchased from March 15 through October 25, 1941, by the Department of Agriculture under its expanded purchase program. Some of this crosses the ocean to feed England, under terms of the Lend-Lease Act, and some is turned over to the Red Cross for shipment to war refugee areas. Some is distributed in this country to public-aid families and for free school lunches. Some may be released upon the market when desirable.

Cost for drying skim milk averages about 2 cents per pound of dry milk. There are three different milk-drying processes -- the spray, drum, and flake methods.

In the spray-drying process, a fine spray of milk is thrown into currents of heated dry air and turns almost immediately into flakes of dried milk.

In the drum process, the milk is applied to a steam-heated revolving metal drum, from which the resulting film of dried milk is removed by a stationary scraper.

In the flake process, partially condensed whipped milk is spread on a wire belt which passes through a chamber heated by currents of air.

Flakes of dried milk produced by these processes are reduced to a fine powder, then carefully packaged in airtight cans or bags. Exposure to moisture, light, and air causes the deterioration of dried milk, and the packaging is therefore most important. Once a package of dried skim milk has been opened, the milk powder will keep only a few weeks, even though the package is closed again and kept in a refrigerator.

Almost all the dried milk purchased by the Government for shipment abroad is skim milk. Dried whole milk is not as practical as it does not last well because of the butterfat content.

In a single Atlantic crossing, one cargo ship can carry enough dry skim milk to provide every person in London with a quart of skim milk a day for 2 weeks.

Small bulk for shipping



Approximately the same in food value are: 1 quart of fluid whole milk; $4\frac{1}{2}$ ounces of dry whole milk; $3\frac{1}{2}$ ounces of dry skim milk, plus $1\frac{1}{2}$ ounces of butter; and 17 ounces of evaporated milk.

Dry skim milk may be substituted most conveniently for fresh milk in cooking. In preparing bread, cakes, puddings, and cereals, the milk may be added in powdered form, just as it comes from the package. For use in beverages, soups, gravies, sauces, and such dishes as scrambled eggs and custards, the dry skim milk can be made fluid by mixing a cup of milk powder with a quart of water.

Milk for drinking that tastes very much like pasteurized market milk can be made by mixing 4 tablespoons of high quality dry whole milk with a cup of water.

Ice cream plants, bakeries, and milk chocolate kitchens in this country use large quantities of dried milk. Lower grade dried milk is used in the manufacture of feed for poultry, hogs, and other animals. Of the 447 dry skim milk plants operating in the United States in 1940, 268 were producing dried milk for human consumption and the rest for animal feed.

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